

REMARKS

The Office Action of November 20, 2009, has been carefully studied. Claims 17, 19-21, 31 and 32 currently appear in this application. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration and formal allowance of the claims.

Claims 17, 19, 20 and 31 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Iwaki et al., US 6,858,392 in view of Mao, USPGPUB 2003/0124332. The Examiner agrees that Iwaki does not teach a chemically modifying layer containing a carboxyl group, and states that Mao teaches that a chemically modifying layer containing a carboxyl group was known. This rejection is respectfully traversed.

Submitted herewith is the declaration of Hirofumi YAMANO, one of the inventors of the subject application, in which a solid support as claimed herein was compared with a porous support as disclosed by Mao. Entry of this declaration is respectfully requested. It is clear from this declaration that the porous support of Mao is unsuitable for use as a DNA chip because there is too much overlap of the spot signals. Additionally, the blocking time for the porous material took much longer than for solid substrate as claimed herein. Accordingly, one skilled in the art would certainly not use the carboxyl group of Mao in the detection device of Iwaki, as it is clear that the Mao substrate is unsuitable for DNA chips. If the skilled artisan were to follow Mao as proposed, the invention would not be achieved.

Withdrawal of the rejection is respectfully requested.

Claims 17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwaki in view of Mao and further in view of Woo, US 5,929,194. This rejection is respectfully traversed for the reasons given above.

As noted above, the porous substrate of Mao is totally unsuitable for use as a DNA chip, and therefore, one skilled in the art would have no reason to combine the disclosure of Mao with that of Iwaki and Woo. Without Mao, there is no teaching or suggestion to use the carboxyl group for the chemically modifying layer on a chip as claimed herein.

Withdrawal of the rejection is respectfully requested.

Claims 17 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwaki in view of Mao and further in view of Bertrand et al., *Macromol. Rapid Commun.* 22000, **21**:319-348. This rejection is respectfully traversed for the reasons given above.

It is clear from the YAMANO declaration submitted herewith that one skilled in the art would not combine Mao with Iwaki to obtain the herein claimed substrate, as the porous substrate of Mao has been demonstrated to be totally unsuitable for use as a DNA chip. Therefore, one skilled in the art would not combine Iwaki with Mao expecting to obtain a useful DNA chip.

Withdrawal of the rejection is respectfully requested.

Claims 17, 19, 20 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao in view of Mirus et al., WO 01/02538. This rejection is respectfully traversed for the reasons given above.

The YAMANO declaration submitted herewith clearly demonstrates that the Mao porous substrate is totally unsuitable for use as a DNA chip. Therefore, it would be unreasonable to combine Mirus, which relates to substrates for nucleic acid immobilization on solid supports, with Mao, simply because one would have no expectation of successfully producing a DNA chip. Since the Mao porous support is useless as a DNA chip, one skilled in the art would not look to Mao for information or inspiration regarding preparing DNA chips.

Withdrawal of the rejection is respectfully requested.

Claims 17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao in view of Mirus and further in view of Woo et al., US 5,929,194. This rejection is respectfully traversed for the reasons given above.

Mao discloses porous supports, which porous supports have been demonstrated in the YAMANO to be unsuitable for use as DNA chips. Therefore, one skilled in the art would not combine Mao with Mirus and Woo in order to obtain a useful DNA chip, as the Mao porous support provides a chip that does not exhibit uniform fluorescence intensity. Moreover, on the Mao chip spot signals overlapped considerably so that it would be difficult to use the porous substrate of Mao as a DNA chip.

Withdrawal of the rejection is respectfully requested.

Claims 17 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao in view of Mirus and further in view of Bertrand. This rejection is respectfully traversed for the reasons given above.


Mao discloses a porous support, which has been demonstrated to be unusable as a DNA chip. There is nothing in Mirus or Bertrand that suggests that the Mao support could be made non-porous, as it is clear that Mao only discloses porous supports. Therefore, since the Mao support is unfit for use as a DNA chip, it is respectfully submitted that Mao cannot possibly make the presently claimed solid supports obvious.

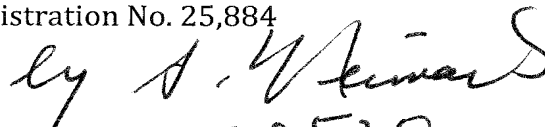
Withdrawal of the rejections is respectfully requested.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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